psrs
Patient Safety Reporting System
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PATIENT SAFETY

FEEDBACK

Volume 4, Issue 2

The theme of this issue is drawn from PSRS reports that involve human factors issues. One description of Human Factors is the optimization of the interaction between people and machines, equipment, procedures, and environment to reduce the potential of injury and error.[1] There are many models that explain Human Factors, one of which is the SHEL model, an acronym for: Software, Hardware, Environment, and Liveware).[2] PSRS has received reports related to this model as shown below. (Actual reporter quotes appear in italics.)

Software includes the non-physical aspects of the system such as procedures, computer software, and checklists.[2] This RN reporter describes a close call while interacting with Computerized Patient Record System (CPRS) and the Bar Code Medication Administration (BCMA).

"MD ordered Zyprexa 10mg. IV. Zyprexa requires approval when ordered. CPRS allowed the wrong route as an option and allowed the order without approval. (Zyprexa is not to be given IV.) I noticed dose to be reconstituted [was] *for the IM route and called pharmacy (no instructions were sent.) The medication should have been flagged for psych use only. The pharmacy sent a vial to the floor labeled for IM use. In BCMA it was still ordered as IV."*

The medication vial was returned to the pharmacy and another med was used. This is a Human Factors software issue because it involved the interaction between the human and the computer software that might have been prevented if certain protection features were implemented.

Hardware includes workstation and equipment design such as controls/knobs and even the design of the bar code scanner fitting the human hand. A recent PSRS reporter expressed their concern with newly purchased mattresses that were hindering optimal patient care.

"The new mattresses for the beds are approximately 3 inches wider than our standard mattresses. The problem is they get caught on the siderails and weights are being affected by being 50 lbs. lower than actual as with this patient. This patient also had their hand caught for an extended period of time between the mattress and railing causing discoloration."

This is a Human Factors hardware issue because the physical equipment design (mattress size) resulted in injury to the patient (due to width) and errors in measurement (weight).

SOFTWARE
HARDWARE
ENVIRONMENT
LIVEWARE

LIVEWARE

Humans (liveware) are at the center of the SHEL model because they interact with software, hardware, environment, and other humans.

Environment includes adapting systems such as air conditioning, sound-proofing, and noise to match the needs of the human. A work environment with a noticeable noise distraction prompted this PSRS report. While not related to patient harm or injury, PSRS categorizes this report as a "potential safety situation."

"Our common areas and offices are affected by a noise generated by the air conditioning system. Staff, patients and visitors complain. I bought a noise cancelling headphone which helped a little but the rumble 'goes to the bone'. The problem has been present for at least 3 years and makes for a very negative work environment. Engineering has tried multiple fixes without success."

This is a Human Factors environment issue because the sound level negatively impacted the work environment and could contribute to human error.

Liveware is the interface between people. It includes teamwork and communication. This RN reporter conveys the importance of communication with responsible staff.

"Foul odor was noted in the Ambulatory Clinic for 4 days, causing nausea and headaches. Facility Management stated "they did not smell anything", multiple times. Two employees developed respiratory problems. Apparently all the requests and visits by facility management were never communicated with their management, so upper management had not been aware of the problem. [On day 4], *100 patients and about 30 staff were evacuated due to the health hazard. Employees experienced breathing problems and migraine headaches. After 6 hours, the sewer pipe was fixed and the environment returned to normal."*

This is a Human Factors liveware issue because there were communication gaps between various departments concerning a possible health hazard.

[1]Adapted from remarks published by H. Holbrook, 1995-96 President, Human Factors and Ergonomics Society.
[2]Hawkins, F. H. (1987). *Human Factors in Flight*. Aldershot, UK: Gower Technical Press.

Meet the Staff

If you have ever wondered who the folks are that process and analyze the reports sent to PSRS every month, we invite you to meet the staff in this and subsequent issues of *FEEDBACK*.

Steven Pakula, M.D., Lead Analyst

Q: How long have you been with the Patient Safety Reporting System?

A: For four years. I came aboard around the time PSRS was getting started.

Q: The patient safety arena has become very visible and a strong focus in the VA in recent years. At your previous place of employment, was patient safety a focus for you?

A: I was deeply involved with patient safety in my prior career as both a practicing physician and as an Asst. Physician in Chief with Kaiser Permanente in Northern California. My responsibilities involved Medical Legal affairs, Risk Management, Bioethics and integration with Quality Assurance.

Q: Do you think that PSRS can make a difference in the healthcare system at the VA?

A: I think PSRS can make a significant difference in the VA Healthcare System if more VA staff and employees use it. There are so many near misses/close calls occurring daily in healthcare. Events happening at one VA facility are probably happening nationwide. PSRS provides a central forum to pull these kind of issues together and also spread awareness of the risk as it relates to patient safety. This can prevent the same adverse event from happening over and over. Additionally, PSRS could provide the quality and quantity of information that will drive system changes throughout the VA Healthcare program.

Q: What are your favorite types of reports to analyze?

A: My favorite reports are those that not only describe an event or close call, but also provide fixes either recommended or implemented by the reporter or the facility.

Q: What do you like most about processing PSRS reports?

A: Calling each reporter has been a revelation. I have always received a positive response from the reporter when they realize that their report is actually reviewed and that they have the opportunity to describe the reported events in much greater detail.

Q: What do you like least about processing PSRS reports?

A: When talking to reporters about an event, there is nothing more disheartening than hearing the reporter say "This was an accident waiting to happen; we all knew it would happen" followed by "I wish someone had reported it sooner."

Q: What do you do when you are away from PSRS?

A: When away I like to travel, fly fish, play bad golf, and eat really good food!

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